

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A gravity fed water purification cartridge, comprising:
 - an inlet head cap configured to be coupled to a prefilter, wherein said inlet head cap provides an inlet for untreated water;
 - a ring member in fluid flow communication with the inlet head cap, wherein said ring member is configured to evenly distribute the untreated water to a purification medium;
 - a purifier vessel in fluid flow communication with the ring member, wherein said purifier vessel is configured to hold the purification medium to treat said untreated water and provide treated water;
 - a bulkhead coupled to the inlet head cap and configured to separate the untreated water from treated water;
 - a dwell chamber coupled to the bulkhead, wherein said dwell chamber provides residence time for treatment of the treated water with residual halogen, and wherein the dwell chamber is in fluid flow communication with the purifier vessel; and
 - an outer skin coupled to the bulkhead, wherein said outer skin and dwell chamber provide an annular space therebetween, and wherein said outer skin is configured to discharge said treated water.
2. The cartridge of Claim 1, wherein the purification medium is capable of binding and releasing a halogen.
3. The cartridge of Claim 1, wherein the inlet head cap compresses the ring member against the purifier vessel, and the purifier vessel is compressed against the bulkhead to provide a sealed space.
4. The cartridge of Claim 1, wherein the purifier vessel has a capacity to hold about 10 to about 50 grams of the purification medium.
5. The cartridge of Claim 1, wherein the purification medium includes at least one selected from a halogenated polystyrene hydantoin, a polystyrene hydantoin, a polymeric sulfonamide resin, a hydantoinylated siloxane, and a polystyrene triazinedione.

6. The cartridge of Claim 1, wherein the purifier vessel comprises a plurality of pegs configured to transfer a compressive force induced by the inlet head cap to a flange on the purifier vessel.

7. The cartridge of Claim 1, wherein the purifier vessel is seated on a compressible gasket of about 20 to about 80 shore A durometer.

8. The cartridge of Claim 7, wherein the gasket is non-leaching and suitable for drinking water applications.

9. The cartridge of Claim 1, wherein a gasket is located at the coupling of the inlet head cap to the bulkhead.

10. The cartridge of Claim 9, wherein the gasket is substantially incompressible.

11. The cartridge of Claim 1, wherein the dwell chamber provides a residence time of at least about 2 to about 5 minutes.

12. The cartridge of Claim 1, wherein the annular space is configured to hold an additional water treatment medium.

13. The cartridge of Claim 12, wherein the additional treatment medium includes at least one selected from activated carbon, mineralization materials, and heavy metal removal agents.

14. The cartridge of Claim 1, wherein the purifier vessel, dwell chamber, and outer skin are comprised of chlorine resistant materials.

15. The cartridge of Claim 1, wherein the purification medium is configured in a bed having an aspect ratio of at least 3.

16. A water purification cartridge, comprising:
an inlet member configured to provide untreated water in a first axial direction;
a ring member adjacent to said inlet member, wherein said ring member is configured to distribute said untreated water;

a purifier vessel adjacent to said ring member, wherein said purifier vessel is configured to treat said untreated water to provide treated water;

a bulkhead adjacent to said purifier vessel, wherein said bulkhead is configured to separate untreated water from treated water;

a dwell chamber exterior to said purifier vessel, wherein said dwell chamber is configured to provide treated water flow in a second axial direction opposite to the first axial direction.

17. The cartridge of Claim 16, wherein the purifier vessel comprises at least one purification medium selected from a halogenated polystyrene hydantoin, a polystyrene hydantoin, a polymeric sulfonamide resin, a hydantoinylated siloxane, and a polystyrene triazinedione.

18. The cartridge of Claim 17, wherein the halogen is chlorine or bromine.

19. The cartridge of Claim 16, wherein the ring member distributes untreated water in a radial direction.

20. A gravity fed water purification system, comprising:

a prefilter interior to an untreated water container;

a water purification cartridge in fluid flow communication with the prefilter, wherein said water purification cartridge is interior to a treated water container, wherein the untreated water container and the treated water container are integrally coupled to prevent the entry of untreated water into the treated water container, and wherein said cartridge comprises a purification medium capable of bonding and releasing a halogen.

21. The cartridge of Claim 18, wherein the water purification cartridge comprises at least one purification medium selected from a halogenated polystyrene hydantoin, a polystyrene hydantoin, a polymeric sulfonamide resin, a hydantoinylated siloxane, and a polystyrene triazinedione.

22. The cartridge of Claim 20, wherein the halogen is chlorine or bromine.

23. A water purification cartridge, comprising:

a purifier vessel to treat untreated water containing at least one purification medium selected from a halogenated polystyrene hydantoin, a halogenated polymeric sulfonamide resin, a halogenated hydantoinyl siloxane, and a halogenated polystyrene triazinedione, and a dwell chamber after said purifier vessel to provide residence time, wherein treated water can contact residual halogen produced from said purification medium.

24. The cartridge of Claim 23, wherein the halogen is chlorine or bromine.